

NEW ABSTRACT

An illumination system includes a radiation source and a fluorescent material including at least one phosphor capable of absorbing a part of light emitted by the radiation source and emitting light of wavelength different from that of the absorbed light. The phosphor includes a yellow red-emitting cerium-activated carbido-nitridosilicate of general formula $(RE_{1-z})_{2-a}EA_a Si_4N_{6+a}C_{1-a}:Ce_z$ where $0 \leq a < 1$, $0 < z \leq 0.2$, EA is at least one earth alkaline metal selected from the group of calcium, strontium and barium, and RE is at least one rare earth metal chosen from the group of yttrium, gadolinium and lutetium. The phosphor may include a red to yellow-emitting cerium-activated carbido-nitridosilicate of general formula $(RE_{1-z})_{2-a}EA_a Si_4N_{6+a}C_{1-a}:Ce_z$ where $0 \leq a < 1$, $0 < z \leq 0.2$, EA is at least one earth alkaline metal selected from the group of calcium, strontium and barium, and RE is at least one rare earth metal chosen from the group of yttrium, gadolinium and lutetium.